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IN THIS ISSUE

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FROM THE COMMANDING OFFICER

Since assuming command of the Marine Safety Center in July 1995, I have talked with many of you on the phone and met with others. It is good to be back in the plan review/design world again.

At one point we were going to discontinue this newsletter to save time and money. After hearing your opinions about that, we're back on. We realize now that you need to know about new policies and some of the technical issues that you can't get anywhere else. We are committed to keeping you informed about what is going on at the MSC and how it affects you. This newsletter helps fill that need.

In conversations with you and in my dealings with the technical staff here, I continue to be amazed at the breadth and complexity of the issues encountered on a daily basis. In these instances, the chances for miscommunication and misunderstanding are very high. My message to each of you is to keep the lines of communication open. We are here to answer your questions, explain our findings, and to otherwise promote safe designs.

We publish an organization chart with phone numbers in each newsletter; it's there for your use. Don't hesitate to call if you have questions or problems. To make that easier for you, we will be making changes to our phone system in the near future and will continue to look for ways to provide better and more prompt service. You will hear from us separately on that issue in the near future.

I believe that most problems are more easily solved through good communications. You may call me or any of the other members of the MSC anytime we can help.

M. M. Rosecrans, Capt USCG

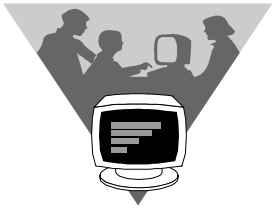
PREVENTION THROUGH PEOPLE

The Coast Guard, and others within the maritime community, are taking a closer look at the human element and its impact on safety. For over 150 years we have relied heavily on engineering design, construction, and inspection in promoting marine safety. It can be argued that our engineering approach has been a success; the rate of casualties caused by engineering failures is in the range of only 5 to 25 percent, depending upon the source of the study. Despite our successful effort, casualties persist. The remaining 75 to 95 percent of casualties (we have settled on 80 percent for discussion purposes) are caused by human factors, including the organizational element. It is apparent that if the Coast Guard and the marine community are going to make substantial gains in safety, we must address human factors. This premise is the basis of the Coast Guard's Prevention Through People (PTP) initiative.

We in the technical field play an important role in accident prevention. The regulations, industry standards, and classification rules which are used must address the effect of the human element as it pertains to safety. At the design stage, we must consider this human element with respect to construction, operation, maintenance, inspection, and repair. We need to look beyond our "drawing boards" and consider the entire safety system in use. We've all heard the horror stories about the auto industry designing cars that require the engine to be lifted in order to change the spark plugs. The truth is we have our own horror stories and need to address them.

We can make major gains in safety by addressing human factors. For more information or to comment on PTP, contact the Human Element and Ship Design Branch of Coast Guard Headquarters at (202) 267-2997.

MSC ONLINE: CONNECTING WITH OUR CUSTOMERS



If you have access to the internet World Wide Web (WWW) you can reach the Marine Safety Center's homepage at:

www.dot.gov/dotinfo/uscg/hq/msc/mschome.html

We offer this page, as part of the overall Coast Guard homepage, to provide information regarding technical review issues to you, our customer. Our goal is to make useful and timely information easily available to those who want it. So far, the page includes descriptions of the MSC Mission, Vision and Organization, as well as downloadable copies of our Marine Safety Center Technical notes. We can only make this resource useful to you if we know what you need. So please visit our page and let us know what you think. Just e-mail us through our web page or drop us a line the old fashion way.

The following MSC Technical Notes are available on the internet:

01-93 Intact Stability Considerations for Glass Panels/Windows Located Above the Bulkhead Deck on Subchapter H & T Vessels

01-94 Acceptance Criteria for Pressure Vessels on Reflagged Vessels

02-94 Final Emergency Loads; Elevators

03-94 Structural Fire Protection Requirements for the Installation of Beverage Delivery Systems in Concealed Spaces Aboard Passenger Vessels

04-94 Damage Stability Considerations Regarding the Extent and Character of Damage for Vessels Not Subject to SOLAS Which Operate Only on Inland Waters or Ferry Vessels; 46 CFR Table 171.080(a), Footnote 3

05-94 Special Considerations Regarding Racking Loads in the Structural Analysis of Large Multi-Level Superstructures on Passenger Vessels Operating on Protected or Partially Protected Waters

01-95 Permissible Locations of Class I Watertight Doors

02-95 Damage Stability Equalization for Vessels (Mono Hull Only) Subject to 46 CFR 171.080(d)

03-95 General Alarm System Equivalencies

04-95 Light Ship Change Determination; Weight-Moment Calculation vs. Deadweight Survey vs. Full Stability Test

05-95 Acceptable Applications of Wire on Coast Guard Certificated Vessels

06-95 Calculation of Combustible Fire Load in Accommodation Spaces for Vessels Subject to 46 CFR Subpart 72.05

01-96 Hydrogen and Ignition Energy Hazards in Passenger Submersibles

MTN 06-95: CALCULATION OF COMBUSTIBLE FIRE LOAD

Marine Safety Center Technical Note (MTN) 06-95, entitled "Calculation of Combustible Fire Load in Accommodation Spaces for Vessels Subject to 46 CFR Subpart 72.05," has

been developed with input from many of the people most affected by its guidance. Our appreciation goes out to all who responded to the call and provided valuable input.

Used in conjunction with Navigation and Vessel Inspection Circular (NVIC) 8-93 and Commandant Policy File Memorandum 1-94, MTN 06-95 should provide answers to many important fire load questions. A full discussion of the theoretical basis for the fire load limitations is included as well as a summary of the correlation between the fire load limitations and space classifications. The MTN provides a workable tool for designers, architects, plan reviewers, and inspectors.

Work is continuing at Coast Guard Headquarters on the update of NVIC 6-80, "Guide to Structural Fire Protection Aboard Merchant Vessels." The new version of NVIC 6-80 will incorporate much of the guidance of MTN 06-95. In the interim, anyone needing fire load guidance may obtain a copy of the new MTN 06-95 by contacting the Marine Safety Center through the internet or by calling the MSC Hull Division at (202) 366-6481.

MSC COMPUTER LIBRARY

The MSC Salvage Team has entered into a new partnership with industry. This partnership is based on the sharing of digitized vessel hull data files between shipping companies and the MSC Salvage Team. The MSC presently has over 4,000 vessel hull forms on file and is looking to expand this base in order to better serve the public in the event of a vessel casualty. Files of offsets, internal arrangements, lightship distribution, and midship sections in virtually any PC computer format are welcome.

The Salvage Team is now accepting any vessel data files that industry wishes to keep on file with the Salvage Team strictly for use during marine casualties and drills involving the company. In November of 1995, Stolt Parcel became the first member of industry to supply vessel data files to the Salvage Team. This partnership quickly paid a big dividend during an exercise in Savannah, Georgia, when Stolt and the Salvage Team were able to quickly and accurately analyze the simulated damage to the vessels involved.

For more information on participating in this new partnership please contact the Salvage Team at (202) 366-6441.

SALVAGE TEAM OFFERS DRILL PLANNING SERVICES

The MSC Salvage Team has been involved in several Preparedness for Response Exercise Program (PREP) oil spill drills, as both designer and participant. As participants, the Salvage Team provides technical assistance to the On-Scene Coordinator (OSC), just as they would in an actual incident. As part of the drill design team, they ensure that the casualty, resulting damage to the vessels, and oil outflow are technically accurate. The increased accuracy provides for a more realistic casualty scenario.

The Salvage Team may be available to help plan and participate in any industry led oil spill exercise. If you would like assistance, you are encouraged to contact the Salvage Team at (202) 366-6441.

OBTAINING CARGO AUTHORITY FOR U. S. TANK VESSELS

The Marine Safety Center Cargo Division frequently receives questions from vessel owners and operators regarding the addition of cargoes to a vessel's Certificate of Inspection (COI). We recognize the regulations regarding carriage of bulk liquid cargoes can be very complex. While we are always ready to assist vessel operators in cargo authority determinations, the following guidelines offer some assistance in navigating through the requirements.

Vessel owners and operators should remember that the Marine Safety Center makes recommendations to the local Officer in Charge, Marine Inspection (OCMI). Only the OCMI may endorse a COI for carriage of a specific cargo. Unless the COI is endorsed with a cargo, the vessel does not have authorization to carry it regardless of the recommendation of the Marine Safety Center.

INLAND VESSELS

For tankbarges operating on inland routes, the determination is fairly straightforward. A tankbarge which complies with 46 CFR Parts 30-39 (Subchapter D) may carry all cargoes listed in 46 CFR Table 30.25-1 and 46 CFR 153 Table 2 subject to flammability grade restrictions and possibly benzene restrictions contained in 46 CFR 197. A vessel may be authorized to carry a cargo listed in 46 CFR Part 151 (Subchapter O) only if the vessel has been shown to comply with Part 151 and meets the requirements contained in 46 CFR Table 151.05.

OCEANGOING VESSELS

For vessels certificated for an oceans route, cargo authority is more complicated since international regulations place pollution requirements on cargoes designated as "noxious liquid substances" (NLS's). A typical bulk liquid cargo authorization for a Subchapter D oceangoing tank vessel is:

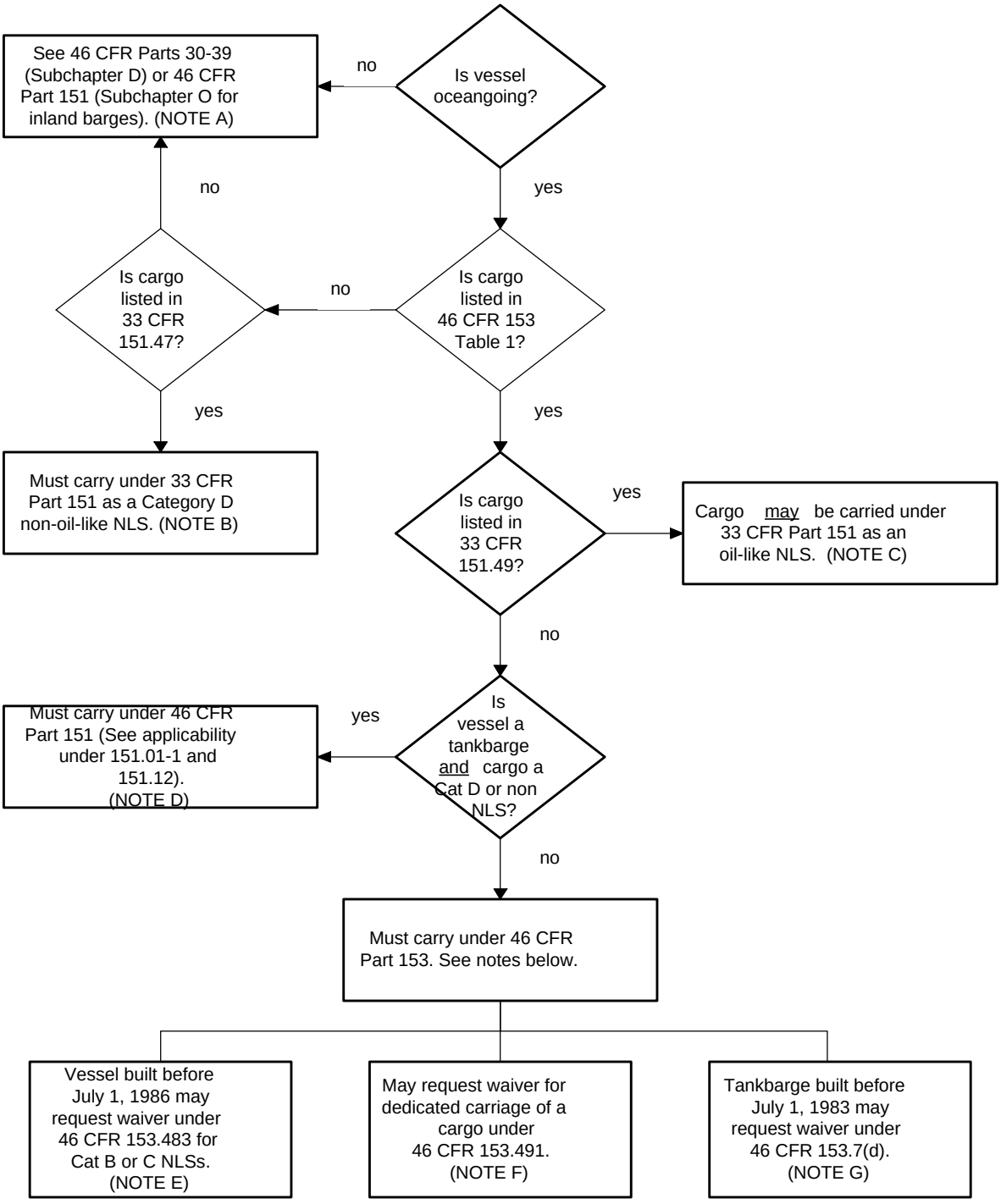
> Grade A (B, C, D or E) & Lower Flammable & Combustible Liquids Identified in 46 CFR Table 30.25-1 or 46 CFR 153 Table 2 as Pollution Category I or III

This authority allows for the carriage of MARPOL Annex I oils which are indicated as Pollution Category I in Table 30.25-1. The authority also covers many flammable and non-flammable cargoes that are considered to be a less significant pollution threat. These are the cargoes indicated as Pollution Category III in Table 30.25-1 or 153 Table 2. No further endorsement is necessary to carry any of these cargoes. This authority does not allow for the carriage of any NLS cargoes, indicated by Pollution Categories A through D, or for Subchapter O cargoes listed in 46 CFR 153 Table 1. In order for an oceangoing tank vessel to carry an NLS or Subchapter O cargo, that cargo must be authorized by the vessel's COI.

Subchapter O cargoes may be carried under the authority of 46 CFR Part 153 and are listed in Table 1 of that part. Not all cargoes in Table 1 are NLS's and not all NLS's appear in Table 1. There are some NLS cargoes (typically Category C or D) that are listed in Table 30.25-1 and 33 CFR Part 151. These cargoes are subject to the pollution requirements in 33 CFR 151.

The following flowchart provides guidance in determining what steps are necessary for an oceangoing vessel to carry a particular NLS or Part 153 cargo.

CARGO AUTHORITY FLOWCHART FOR OCEANGOING VESSELS



FLOWCHART NOTES

A. These should be Category I or III cargoes already covered by the 'blanket' endorsement on an oceangoing vessel's COI. They are subject to flammability limits per the COI.

B. These are Category D non-oil-like NLS's regulated by 33 CFR Part 151. The requirements for carriage are contained in 33 CFR 151.35.

C. Category C oil-like NLS's are regulated by 33 CFR Part 151. The requirements are contained in 33 CFR 151.33. A vessel reviewed under 46 CFR 153 would carry these cargoes under Part 153.

D. Category D or non-NLS cargoes listed in 46 CFR 153 Table 1 are regulated by 46 CFR 151 for oceangoing barges. See also 46 CFR 151.12 for Category D NLS's; note the vessel must additionally meet 153.470, .486, and .490.

E. For vessels built prior to July 1, 1986 carrying Category B or C NLS cargoes, certain sections of 46 CFR 153 may be waived. The requirements for this are contained in 46 CFR 153.483. This is commonly referred to as a 'Restricted Voyage' or '483 waiver.'

F. For vessels which only carry a single NLS cargo in a particular tank, 46 CFR 153.491 allows for the waiver of certain sections of 46 CFR 153. This is referred to as a 'Dedicated Cargo' or '491 waiver.'

G. For tankbarges built prior to July 1, 1983, Subpart B (Design and Equipment) of 46 CFR 153 may be waived if the vessel meets 46 CFR 30-34 and 151. This waiver applies only for domestic voyages

TONNAGE BRANCH JOINS THE MSC

As noted briefly in the last newsletter, the Tonnage Survey Branch has relocated to the Marine Safety Center's Cargo Division. This action resulted from the broader reorganization that has taken place within the Marine Safety and Environmental Protection Directorate.

The Tonnage Survey Branch is responsible for overseeing tonnage measurement performed by the American Bureau of Shipping (ABS Americas) and Det Norske Veritas (DNV/USA) under 46 CFR Part 69. As before, specific questions from commercial interests on Convention, Standard or Dual Tonnage measurement should be addressed first to either ABS or DNV. ABS or DNV may then refer questions to the Tonnage Survey Branch staff.

Other Tonnage Survey Branch functions include responding to tonnage related inquiries from Coast Guard field units, other governmental agencies, and foreign governments. In addition, this branch is responsible for all technical aspects of Simplified measurement: a system which may be used for non-self propelled vessels engaged only on domestic voyages, as well as vessels of all types under 79 feet in length. Under this system, vessel owners provide dimensional information as part of the vessel documentation process, from which the vessel's tonnages are calculated.

Finally, the Tonnage Survey Branch is the focal point within the Coast Guard for all tonnage issues having broad national and international implications. With the International Convention on Tonnage Measurement of Ships, 1969, having come into full force in July of last year, there is increasing movement in the direction of using Convention measurement as an optional basis for vessel regulation. Input from vessel designers, owners, operators, and others that are potentially affected is always welcome, and will help the Marine Safety Center better serve the public interest.

Please address any question or comments on tonnage measurement to either Mr. Don Goebel (202 366-2442) or Mr. Peter Eareckson (202 366-6502) of the Tonnage Survey Branch staff.

OIL FIELD WASTE BARGE CONVERSIONS

Oil field waste barge (OFWB) conversions presently require involved stability analyses as detailed in Navigation and Vessel Inspection Circular 7-87, "Guidance on Waterborne Transport of Oil Wastes." In fact, the stability criteria applied exceed those for other types of tank barges. The Coast Guard is seeking to streamline the compliance verification process by condensing the applicable requirements into a single empirical formula.

We will go about this initially by researching our database of previously approved OFWB's to determine the critical parameters relative to the existing stability requirements. We've noticed that stability parameters of virtually all OFWB's fall into two very narrow size categories. We are now to the point that when we receive a stability analysis on an OFWB, we can readily determine through analysis of these parameters that stability will be acceptable. We hope to establish a statistical correlation between vessel parameters and stability requirements and develop a formula which will establish similarity to these existing and known satisfactory designs. Ideally, a designer would only have to show the vessel parameters meet a certain formula and there would be no need for further stability work. The challenge will be to make the formula applicable to a wide enough range of vessels to meet the needs of the industry. If you have experience with OFWB conversion projects and would like to comment on or help us in this endeavor, please contact LT Joe Lo Sciuto at (202) 366-6441.

STREAMLINING CONTROL VERIFICATION EXAM PLAN REVIEW

The Coast Guard is continually looking for ways to streamline its processes. The Control Verification Exam (CVE) program is one such process, and the plan review phase in particular could benefit from a focus on streamlining. The Coast Guard is also interested in increasing the cruise ship industry's participation in ensuring safety through compliance with the standards of the International Convention for the Safety of Life at Sea (SOLAS).

To help streamline the plan review process for CVE's, the Coast Guard has signed Outlines of Cooperation (OOC's) with four classification societies: Registro Navale Italiano (RINA), American Bureau of Shipping Americas (ABS Americas), Lloyd's Register (Lloyd's), and Det Norske Veritas (DNV). In the OOC's, each classification society agreed to submit its interpretations of the SOLAS regulations for areas which are left to the discretion of the Administration. In turn, the Coast Guard agreed to evaluate and approve the classification societies' interpretations. With these approved interpretations and a complete set of plans certified by one of these classification societies, the Marine Safety Center will be able to complete the plan review process with much less of the give-and-take correspondence typical of previous CVE reviews. There will be less need for clarification of interpretive issues and for written confirmation of each party's position on these issues.

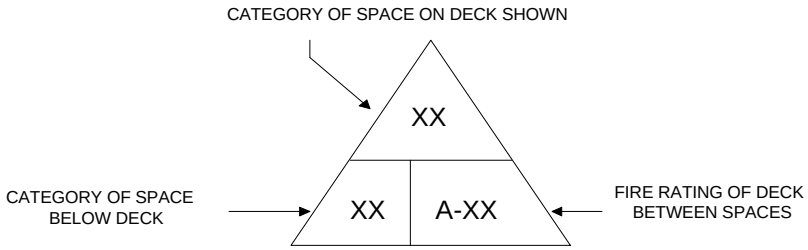
The same benefits of approved interpretations could be realized for the Retroactive Fire Safety Amendment plan reviews which are outlined in Navigation and Vessel Inspection Circular No. 4-95, "Fire Safety Standards for Foreign Passenger Vessels Constructed before 1 October 1994." At this time, three of the classification societies mentioned above are actively engaged in the interpretations approval process, with RINA having had their interpretations approved this past year.

STABILITY LETTER STREAMLINING

In an effort to reduce the number of regulatory documents carried aboard vessels, and to reduce the administrative burden on vessel owners and the Coast Guard, the MSC has moved to take maximum advantage of the provisions of 46 CFR 170.120(b). This regulation allows for conditions of operation relevant to stability to be placed on the vessel's Certificate of Inspection or Load Line Certificate in lieu of issuing a separate stability letter. We have worked with the American Bureau of Shipping and local field offices in this endeavor for the past several months, and have significantly cut back on new stability letters, especially for cargo and tank barges and vessels with comprehensive, approved, trim and stability books. Other vessel types which do not have sufficient room on other documents to address all the pertinent information will continue to receive stability letters. If you have any comments or questions on this practice, please contact the Hull or Cargo Divisions.

STRUCTURAL FIRE PROTECTION

From time to time when we meet with industry representatives we hear "Tell us what you want to see and we will get it to you." Along this line, we recently saw an innovation on a Structural Fire Protection (SFP) drawing that made our review of the drawing much easier. It involved a symbol for deck insulation requirements that included the category of the space on the deck shown, the category space on the deck below and the required insulation from 46 CFR Table 72.05-10. The scheme could also be adapted to bulkheads. Below is the scheme, which we pass along in the hopes that you may be able to use it on your SFP drawings.



STRUCTURAL FIRE PROTECTION INTEGRITY OF DECK OPENINGS

An important principle regarding Structural Fire Protection onboard commercial vessels, is maintaining proper fire integrity of the decks and bulkheads which separate spaces within a vessel. This is necessary in order to prevent the passage of flame and smoke and provide sufficient time for the safe egress and escape of passengers and crew during a fire.

Deck openings on vessels should be designed with this fire integrity principle in mind. Therefore, enclosures for deck openings, such as around stairways, should be designed to maintain the fire integrity of the deck which is penetrated. This requirement is not clearly explained in the regulations contained in Title 46 CFR Subchapter H. However, the International SOLAS Convention requirements

stipulate this more clearly in Chapter II-2, Regulation 29.1.1, as "When a stairway is closed in one 'tween' deck space, the stairway enclosure shall be protected in accordance with the Tables for decks."

When it comes time to design fire boundaries for vessels which are required to comply with SFP requirements, the fire integrity for stairway enclosures around deck openings must meet the same requirements contained in the Tables for decks, even though the enclosures may in fact be vertical stairway bulkheads. This simple rule makes sense when you consider that the enclosures for the deck openings must maintain the fire integrity of the deck which is penetrated by the stairway.

MEANS OF ESCAPE ON FOREIGN PASSENGER VESSELS

The requirements for means of escape are found in SOLAS 74, Regulation II-2/28, and the requirements governing the fire integrity of boundaries around particular spaces are found in Regulation II-2/26. We have begun to notice increased application of a design trend in which individual spaces within a Main Vertical Zone (MVZ) are not provided direct access to the MVZ stairway via a true type 3 corridor. This proposed type of arrangement has become most prevalent in relation to Shopping Mall and Health Club areas, but has been applied in other areas as well. We have traditionally not allowed such an arrangement, and have expressed our concerns in numerous plan review letters. However, we feel that several issues require clarification in order for the U.S. position, as well as the inherent risks associated with such arrangements, to be fully understood.

Direct Access to MVZ Stair Enclosure: A large public space or atrium is typically classified as a category 8 space. Numerous proposals have classified individual sales shops adjacent to a large public space or atrium also as category 8 spaces. However, whereas a large public space or atrium, according to U.S. Interpretation of Regulation II-2/28.1.5, may have direct access to the MVZ stair enclosure, individual, fully enclosed spaces not classified as public spaces (i.e. sales shops) may not directly access the MVZ stair enclosure. Please note that the definition of public spaces, according to Regulation II-2/3.11, does not include sales shops. In addition, such spaces, as discussed below, must be provided access directly to the MVZ stair via a type 3 corridor.

Corridors/Combustibles: Our primary concern when evaluating escape plans has always been the need for protected egress via a true type 3 corridor to the MVZ escape stair from individual spaces within the MVZ. Such egress must be accomplished via a corridor, into which the spaces open directly, and which has direct access to the stair enclosure. Egress from an individual space or sales shop to the MVZ stair shall not require transit through a public space or atrium, or through any space other than a type 3 corridor. This corridor must be protected as a category 3 space, must include proper signage and low-level lighting, and must not include combustibles. We will, however, within the perimeter of this type 3 corridor, permit an information counter containing minimal combustibles. Sales counters are prohibited in this area.

Overall Arrangement: Several proposals have been designed with a large central mall area, classified as a category 8 space, through which passengers will normally transit, and into which the individual spaces, including sales shops, open into. The typical mode in which passengers will access these individual spaces is via this central mall. As a result, it is most likely that, especially in an emergency, they will be inclined to exit from the individual shops into the central mall, an area which does not provide any additional protection as compared with the shops. We are of the opinion that this central mall area, then, by

virtue of the overall arrangement and the effect of this arrangement on passenger egress, should be classified as a type 3 corridor and employed as the primary vehicle of egress for passengers. However, we may consider alternative arrangements.

We wish to assist in any way possible in fostering creative ship designs. However, the safety issues of these arrangements are also of great concern, especially given their expanded use on most of the new designs we have seen. We hope to take a balanced approach to ensuring the safest designs possible in keeping with the regulations.

JUMPER DUCTS REVISITED

On August 23, 1988, the Federal Register (Vol. 53, No. 163) published an Interpretation of Rules affecting 46 CFR Parts 32, 72, 92, and 190, entitled "Ventilation Penetrations of Fire Rated Boundary Bulkheads." The notice clarified existing Coast Guard and international regulations concerning ventilation penetrations of fire rated boundary bulkheads.

The intended purpose of the notice was to demonstrate that return air ducts which are not connected to the ventilation system and penetrate fire rated boundary bulkheads, commonly called balancing or jumper ducts, are unsafe and shall be prohibited. The effect of an Interpretation of Rules published in the Federal Register, is to establish a requirement to be followed by all designers; therefore, the MSC has been consistently enforcing it.

It is evident that in the intervening years, the interpretation has "dropped through the cracks" and is no longer common knowledge. Please call the Hull Division if you have any questions about its application.

WHO'S WHO AT THE MSC

The MSC welcomes a new Executive Officer, Division Chief and recent additions to our staff of engineers.

CDR Richard Prince took over as Executive Officer last Fall. He previously served in various marine safety positions including the Merchant Marine Technical Office in New Orleans, and Executive Officer of Marine Safety Office Huntington, West Virginia. CDR Prince comes to MSC from Marine Safety Office Toledo, Ohio, where he was assigned as Commanding Officer.

LCDR Mark Burrows came from Marine Safety Office Detroit in April to become the new Engineering Division Chief. He previously served as the MODU Branch Chief at MSC after completing his master's degree in Naval Architecture and Marine Engineering at the University of Michigan.

LT Pete Sistare joined the Engineering Division after completing a master's degree in Mechanical Engineering at the Naval Postgraduate School in Monterey, CA. His prior jobs include work at the Marine Inspection Office New York and service aboard the Coast Guard Cutter Campbell.

LT Jeff Brockus joined the Hull Division in August coming from the Direct Commission Program in Yorktown, VA. He graduated from the University of Southern California in Los Angeles with a bachelor's degree in Environmental Engineering and a master's degree in Ocean and Coastal Engineering.

ENS D. T. Samonte is the newest addition to the Cargo Division. He also joined the Coast Guard through direct commission and the Maritime Graduate Program. ENS Samonte is a 1994 graduate of the California Maritime Academy in Vallejo. He received bachelor degrees in Mechanical and Marine Engineering.